



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,876	06/29/2006	Anthony Bonnet	FR-AM2003 NP	7921
31684	7590	01/24/2011	EXAMINER	
ARKEMA INC. PATENT DEPARTMENT - 26TH FLOOR 2000 MARKET STREET PHILADELPHIA, PA 19103-3222			PAUL, JESSICA MARIE	
			ART UNIT	PAPER NUMBER
			1767	
			NOTIFICATION DATE	DELIVERY MODE
			01/24/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

carol.hill@arkema.com
steven.boyd@arkema.com
thomas.roland@arkema.com

Office Action Summary	Application No. 10/584,876	Applicant(s) BONNET ET AL.	
	Examiner Jessica Paul	Art Unit 1767	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,7-11,13-20,24-29,32-34 and 37-39 is/are pending in the application.
- 4a) Of the above claim(s) 14-20,24-29,32-34,37 and 38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,7-11,13 and 39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/2/2010 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

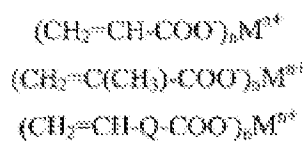
Claims 1, 2, 4, 7-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dahl et al. (WO 90/15828) in view of Rice (US Patent No. 1936994) and Gotcher et al. (US Patent No. 4353961).

Regarding claims 1, 2, and 8-10; Dahl et al. teaches radiation grafting of ETFE with ethyl acrylate [p16, line3; ex4]. ETFE resin powder (fluoropolymer) and ethyl acrylate (compound containing a single C=C double bond, and at least one polar functional group (C=O)) were heated (melt blending, instant step a) in the presence of 2.5% Irganox® 1010 [p16, line5; ex4] (stabilizer, blended before irradiation; instant

Art Unit: 1767

claims 2, 9 and 10). The resin product was filtered and dried (reads on granules or powder, instant step b), then irradiated with electrons to a total dose of 12 Mrads [p16, line9; ex4] (instant step c). The product was then washed with diisobutyl adipate (instant step d) [p16, line10-11; ex4]. Dahl et al. teaches the fluoropolymers can be used in admixtures or compositions with various additives, such as antioxidants (Irganox® 1010) and stabilizers [p13, line37-39]. Given that Dahl et al. teaches, in a preferred embodiment, adding the antioxidant (Irganox® 1010) prior to irradiation, one having ordinary skill in the art would understand that the stabilizers would also be added prior to irradiation also, since the fluoropolymers can be used in admixtures or compositions with various additives, such as antioxidants (Irganox® 1010) and stabilizers [p13, line37-39]. Dahl et al. teaches the fluoropolymer is useful for electrical insulation (i.e. protecting electrical conductors) [p1. ine14-20].

Dahl et al. fails to teach wherein said stabilizer is at least one graftable metal salt having one of the following formulae:



Rice teaches a polymer composition that is used for the insulation of electrical conductors [p1, line1-22], wherein 2 parts by weight (10 wt. % of the stabilizer based on 20 grams of the above ETFE resin powder (91 wt. % of the ETFE resin), as calculated by examiner) of sodium undecylenate is used as a stabilizer [p2, line138; p3, line21-22] (instant claim 8) and is added prior to vulcanization (crosslinking) via thermal energy, Murphy and Rice are analogous art because both are concerned with the same field of

Art Unit: 1767

endeavor, namely compositions useful for insulating electrical conductors. At the time of the invention, a person having ordinary skill in the art would have found it obvious to add the sodium undecylenate stabilizer, as taught by Rice, to the method for radiation grafting, as taught by Dahl et al., and would have been motivated to do so in order to produce a composition having improved shelf life and resistance to chemical change. The examiner notes that "graftable" only requires that the metal salt be capable of grafting to the fluoropolymer, not that the metal salt is actually grafted on the fluoropolymer.

Dahl et al. fails to teach the fluoropolymer is PVDF, which contains at least 85% VDF by weight. Gotcher et al. teaches melt-processible fluorocarbon polymer compositions, wherein suitable fluoropolymers include ethylene-tetrafluoroethylene (ETFE) and vinylidene fluoride (VDF) homopolymers (PVDF, 100% VDF monomers; instant claim 13) [col2, line63-68]. Therefore, Gotcher et al. teaches that ETFE and PVDF are functional equivalents for the purpose of producing melt-processible fluoropolymers for wire coatings. It is *prima facie* obvious to substitute art-recognized functional equivalents known for the same purpose (See MPEP § 2144.06).

Regarding claim 4; Dahl et al. fails to teach the stabilizer blended into the fluoropolymer after the irradiation. However, the selection of any order of mixing ingredients is a *prima facie* case of obviousness in the absence of new or unexpected results. See *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) and *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930). Therefore, it would have been obvious to one

having ordinary skill in the art, at the time of the invention, to add the stabilizer prior to or after irradiation, and still achieve the same expected outcome of results.

Regarding claim 7; the limitations of claim 7, merely define aspects of the third formula of instant claim 1 ($(\text{CH}_2=\text{CH}-\text{Q}-\text{COO}^-)_n\text{M}^{n+}$) and wherein M is zinc, therefore making the limitations of claim 7 optional, wherein claim 1 is rejected by which M is sodium (see above).

Regarding claim 11; Dahl et al. teaches the antioxidant (Irganox® 1010) is used in an amount of 2.5 wt. %, however Dahl et al. fails to teach the antioxidant content is 0.001 to 2% of the fluoropolymer. The experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. See *In re Aller*, 105 USPQ 233. At the time of the invention a person having ordinary skill in the art would have found it obvious to optimize the amount of antioxidant used in the composition based on the specific fluoropolymer employed and the desired degree of stability.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dahl et al. (WO 90/15828) in view of Rice (US Patent No. 1936994) and Gotcher et al. (US Patent No. 4353961), as applied to claim 1 above, and further in view of Kotliar et al. (US Patent No. 4886689)

Dahl et al., Rice, and Gotcher et al. render obvious the basic claimed method for radiation grafting of a compound that can be grafted onto a fluoropolymer, as set forth above, with respect to claim 1.

Regarding claim 39; Dahl et al., Rice, and Gotcher et al. fail to teach the at least one graftable metal salt is grafted. Kotliar et al. teaches a fluoropolymer-polyolefin system, wherein additives are grafted onto the fluoropolymer [col8, line57-60]. Dahl et al. and Kotliar et al. are analogous art because they are both concerned with the same field of endeavor, namely processes for grafting fluoropolymers. At the time of the invention, a person having ordinary skill in the art would have found it obvious to add grafting an additive, as disclosed by Kotliar et al., to the method as disclosed by Dahl et al., and would have been motivated to do so in order to achieve desired properties of the fluoropolymer (i.e. mechanical strength or resistance to oxidation) depending on the type of additive employed.

Response to Arguments

Applicant's arguments filed 11/2/2010 have been fully considered but they are not persuasive.

In response to applicants' arguments that there is nothing in Gotcher et al. to suggest that they are functional equivalents or that they would be interchangeable in any process or formulation. The examiner points out that Gotcher et al. teaches melt-processible fluorocarbon polymer compositions, wherein after irradiation, affords properties useful as shaped articles, especially wear constructions, which exhibit enhanced mechanical properties both at room and at elevated temperatures [col1, line61-65]. Thus the fluoropolymers, as set forth by Gotcher et al. (ETFE and PVDF)

Art Unit: 1767

are functional equivalents for producing fluoropolymer composition suitable for wire constructions.

Furthermore, Mimura et al. (EP 1227134), as cited on IDS, provides evidence that ETFE and PVDF are suitable in crosslinking by using irradiation, for use in the field of electric cables [0005]. Galle et al. (EP 0163825), as cited on IDS, also provides evidence that ETFE and PVDF [p2, line59-63] are suitable radiation crosslinkable fluoropolymers, because they possess a combination of mechanical, dielectric, and chemical properties, which make them useful as electrical insulation material (e.g. wire coatings) [p2, line2-6].

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica Paul whose telephone number is (571)270-5453. The examiner can normally be reached on Monday thru Friday 8:00- 6:00p; alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1767

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/

Supervisory Patent Examiner, Art Unit 1767

Jessica Paul

Examiner

Art Unit 1767

/JMP/